CIE Physics GCSE

Topic 1.2 - Motion

Flashcards

What are the 3 main components of motion?

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1. Speed
2. Direction
3. Acceleration (change in speed)

Give the equation for average speed.

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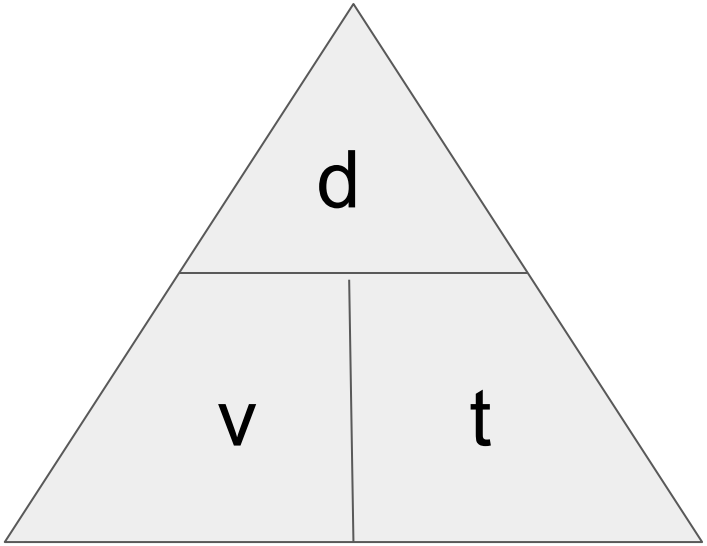
average speed (m/s) = distance (m) ÷ time (s)

$v = d \div t$



What is the difference between speed and velocity? (supplement)

What is the difference between speed and velocity? (supplement)

- Speed is scalar, so doesn't include direction
- Velocity is a vector, so has a direction

Give an equation for acceleration.

(supplement)

Give an equation for acceleration. (supplement)

$$\text{acceleration } (m/s^2) = \frac{\text{final velocity - initial velocity (m/s)}}{\text{time (s)}}$$

What is the gradient of a displacement-time graph?

What is the gradient of a displacement-time graph?

The velocity.

What does a curved line represent on a displacement-time graph?

What does a curved line represent on a displacement-time graph?

Acceleration (or deceleration).

What does the gradient of a velocity-time graph represent?

What does the gradient of a velocity-time graph represent?

Acceleration at that point.

What does the area under a velocity-time graph represent?

What does the area under a velocity-time graph represent?

The displacement.

What does a curved line represent on a velocity-time graph?

What does a curved line represent on a velocity-time graph?

Changing acceleration.

What does a speed-time graph look like when an object is at rest?

What does a speed-time graph look like when an object is at rest?

The y-axis (speed) = 0.

What does a speed-time graph look like when an object moves with constant speed?

What does a speed-time graph look like when an object moves at constant speed?

A flat line (zero gradient).

What does a speed-time graph look like when an object is moving with changing speed?

What does a speed-time graph look like when an object is moving with changing speed?

A non-zero gradient.

What is the value of acceleration due to gravity at the Earth's surface?

What is the value of acceleration due to gravity at the Earth's surface?

$9.81\ m/s^2$

Explain how terminal velocity is reached.

(supplement)

Explain how terminal velocity is reached (supplement)

- Initially in free fall, the only force is weight, causing acceleration downwards
- As speed increases, air resistance (which acts upwards) increases
- This decreases the resultant force
- Eventually air resistance = weight, so there is no resultant force, resulting in terminal velocity

What is deceleration?

What is deceleration?

Negative acceleration (slowing down, decreasing speed).